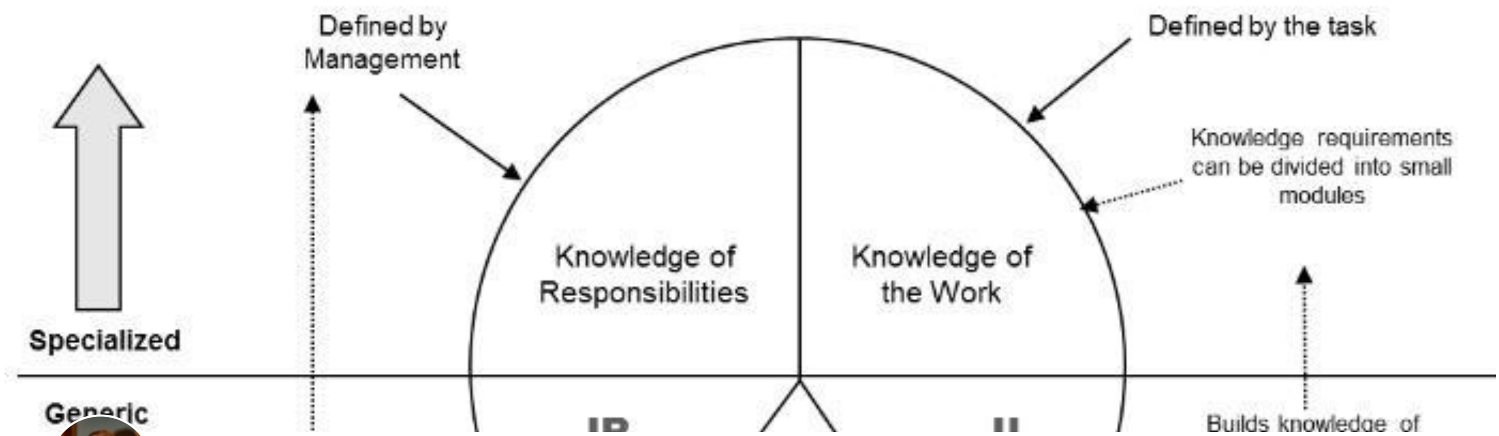


Mark Warren
Experienced Manufacturing Professional "Discovering Solutions with People"

Introduction to TWI

June 20, 2015 • 32 Likes • 0 Comments

TWI or **Training Within Industry** was named to differentiate it from industrial training done in the vocational training programs. The department was established in the summer of 1940 and operated until the regional offices were closed in September 1945 following the surrender of Japan, which ended World War 2. The Headquarters in Washington, D.C. continued operation until the end of December, dispersing materials accumulated during the program and compiling a book on their history – "*The Training Within Industry Report 1940-1945*"[1]

Why the TWI Programs were developed

Each of the TWI programs came about through pressure to meet a specific need which was occurring in plants all over the country producing war material. The programs were not developed with any thought as to the order of their importance or the order in which a plant might use them. In 1940 and 1941, industry was faced with the addition of hundreds of thousands of new workers. For this reason the Job Instruction program was the first one that TWI launched nationally (Nov. 1941). Shortly after work on this program was under way, managers were questioned as to the problems of their new supervisors, and supervisors themselves were asked about the fields in which they most needed help. Out of this survey of industrial opinion came the decision to do something in the field of the skill of improving methods (Job Methods) and in the field of the skill of working with people (Job Relations).

The use of the word "*Job*" in the names of the TWI programs was not just an accident. Before any of these programs were developed, it was determined that whatever was done would have to be both fundamental and simple. It would have to be something that was a part of everyday work for everyday supervisors. It must be on the job level. This was a very important factor in determining the content of the programs and outlining the whole approach. For that reason, each of the programs carries the word “Job” in its name as a promise to plants and a reminder to training people of this down-to-earth philosophy.

In January 1946, the original staff of the TWI headquarters established the **TWI Foundation** to continue the research of the programs developed during the war years. 100+ leading industries in the US supported this effort through an annual subscription that would be about $30,000 today. The TWI Foundation hosted conventions through 1952. The University of Chicago Business School included the Job Instruction program in their training for managers. In 1967 they modified the Job Breakdown Sheet (JBS) to include the third column for listing the WHY of each Key Point. Until this time, they had kept the JBS a two column form to differentiate it from the Job Methods three column Job Breakdown.

The State Department continued to fund TWI programs in multiple countries into the 1960's, often drawing on businesses like Johnson & Johnson for copies of modernized TWI manuals that they would have reprinted for distribution.

TWI Programs

Most people have heard of the “Job” or “J” programs, with Job Instruction being the most common and widest used. Many of the other programs are not well know because they were originally shared only with the TWI Service trainers working in regional offices, not the general public. Some of the programs were developed after 1945 by the TWI Foundation, TWI, INC., The British TWI Service and the New Zealand TWI Service. The first peak of the TWI programs happened around 1960, with about 70 countries being recorded as; the government running the programs, companies using the programs or trainers delivering them commercially. A resurgence of the TWI programs began again about 2000, primarily with the Job Instruction program.

The current focus and sales pitch for Job Instruction often links it to Toyota’s use and applying it to build the foundation for standard work. Job Instruction is far more than just a training tool. The very first step is developing a training time table. This is a “Learning to See” exercise to have the leader develop observation skills and see problems that might be addressed with training. The next step after identifying a training need is to create a Job Breakdown Sheet (JBS). Originally this was just supposed to notes for the trainer, it has become a structured method of defining the key points of a job and why it is important. The skills practice stresses the importance of preparing before training. The preparation process is repeated in Job Relations and Job Methods – this is one of the hidden skills of leadership (do your homework).

Job Instruction

The first training session has an interesting feature, one of breaking people's mental models of what good training looks like. Participants are told how to tie a simple knot, then given a sample to try to follow the directions they just heard. Then they are shown the knot being tied and another person tries to tie the knot. By providing an example of how most people "train" others and failing, most become more open to learning a better method.

Job Relations

The development of the Job Relations program represented an evolution in thinking about supervision. There was no precedent for Job Relations Training. Many the successful leaders have just grown by experience to be what they are, and the means they used were highly individual. Their successes depended largely on their own abilities and personalities. Some, unknowingly, often used the essentials of Job Relations, but there was no standard method.

Most of the Job Relations principles were drawn from experience with field trials in cooperating plants. Harvard University was instrumental in helping with trials; they are the source of the "*case study*" format seen in the program. Job Relations was launched nationally in February 1943.

The focus was on three primary areas:

1. *Supervisory Responsibility* – To get them to see beyond the basics of production, quality, safety, and training. The supervisor gets results through people. Hidden inside is their responsibility for addressing problems and it provides a problem solving sequence that follows the scientific method.
2. Foundations for Good Relations - If supervisors really use these fundamentals they prevent many problems from arising.
3. Treating People as Individuals – This has become a foundation in lean principles.

Job Methods

The development of this program had five objectives:

1. A way to comb a plant quickly in order to discover all jobs with possibilities for methods improvements
2. A method that could be put over to supervisors and which would have practical everyday use
3. A streamlined program for a group of 10 supervisors in 10 hours
4. Based on sound methods engineering principles but in simplified form

5. In accordance with the Job Instruction pattern

In the fall of 1941, Clifton Cox, who was professionally trained as an industrial engineer and who had been working on a 10-hour methods program for employees of Johnson & Johnson and was also currently introducing a 30-hour methods engineering course at Rutgers Extension University, joined the New Jersey staff and was given the assignment of developing the new program. There was frequent consultation with industrial engineers. It was, of course, necessary to constantly stress the fact that Job Methods was not meant to be at a "professional" level and that all technicalities must be kept out. The Job Methods program was launched nationally in May 1942.

Program Development

TWI has three specific training programs to use in improving skills and Program Development could be considered a fourth skill, one of identifying problems and designing a plan to address them through training. Program Development provided a 4-step method for planning the training to meet their own organization's production problems. Due to budget constraints, only about half the TWI Regions participated in the development of the program. New Zealand continued its development and used the Program Development principles in their Organizing Manual.

Follow-Through

The Follow-Through were structured coaching programs to have managers coach supervisors on using the TWI skills. This coaching format is reflected today as the Toyota Kata. Programs were originally developed for each of the TWI programs. They soon realized that they were teaching a coaching function, so the programs were merged.

In 1942, it was realized that the 10 hours of instruction alone was not enough, and work on "*Follow-Through*" began. The first were set up in the pattern of an Institute. People went to a TWI district office for a one-day session called a Follow-Through Institute. They quickly realized that this kind of practice was more effective in the plant.

Continuing Use

The "*Continuing Use*" training was an outcome of observing the key points in facilities where the TWI programs were most successful. This training was available only for internal use; people staffing the regional offices. It outlined what was required to implement a successful program.

The TWI Service released the first version in 1944, but did not further development. New Zealand took this outline and continued its development more than 20 years to create a large volume of useful support materials around the installation and what was required to sustain a successful program.

Management Contact

In 1944 the Management Contact Manual was issued for the use of TWI *Staff Members Only*. It is essentially an outline for selling the programs to top managers. New Zealand merged this information into their "*Organizing Manual*".

Problem Solving

There were two TWI Problem Solving programs created. The TWI Foundation created the first version in 1946 and Lowell Mellen (TWI, Inc.) created a second more comprehensive version that used the three 'J' programs as their basis. It was first taught in Japan about 1956.

Job Safety

The first Job Safety program was developed by Canada and it was primarily the Job Instruction program rewritten with a focus on safety. England quickly followed their lead, but revamped it to focus on discovery of safety issues and risks. This was exported to Japan about 1947 and is the one that most people attribute to Japan, not England. The program continued to evolve into the 1970's, refining the focus on discovery of risks and resolving them with solutions or containment.

Conference Leading

The TWI Foundation developed this short program as a guide to organizing meetings and conferences. The pocket cards for Conference Leading and Discussion Leading are quite similar.

Discussion Leading

The TWI Foundation observed one of the weaknesses in business was the time spent in meetings and transferred what they had learned from the best trainers about facilitation skills into a 10-hour program and pocket card.

MTP (Management Training Program)

This was a mid-level management training program offered primarily in Japan. It consists of 22 session with about half of them covering the content of the JI, JR and JM programs.

Appreciation, Organizing and Follow Up Program

The New Zealand TWI Service assumed the development of the internal support materials needed for successful implementation of the TWI programs. Starting with the "Continuing Use", "Management Contact", Program Development, and Follow-Through content from the US in 1947, they began to experiment and expand to provide coaching guides and guidance for people tasked with selling and implementing the TWI programs.

New Zealand TWI: Appreciation, Operating and Follow Up Programs

New Zealand TWI: Coaching Guides

Levels of Training for 'J' Programs

While the standard training of the skills are what most people are familiar with, there were several levels of training and presentations.

Appreciation Session

The "Appreciation" session was used primarily as a sales pitch to inform top leaders of an organization what a particular program was. There are several versions and they range from 45 minutes to two hours long. In the beginning there were individual Appreciation sessions for each of the Job programs. With feedback from leaders, a single Appreciation program was eventually developed that explained the value of each program in less than an hour.

10-hour Sessions

The original format is delivery of scripted content over five days in sessions that are two hours long. They quickly discovered that additional coaching between the sessions were necessary for better retention after the sessions.

The length of the sessions have been reorganized by many trainers, primarily for their own convenience. This has created single day sessions, 2, 3, and 4 day sessions formats.

Institute

The "Institute" was the original "Train the Trainer" program to teach trainers to deliver the 10-hour sessions. The program length varied from five to six day formats in the original materials, with a minimum of 40 hours of training content. The manuals were called "*Institute Conductor's Manual*"

To be eligible to attend an Institute, one would have to attend a 10-hour session and practice the program. Then they were evaluated on their training skills before being offered the opportunity to attend an Institute. The training consisted not only of practicing delivery of the session segments, but also background information on why the content was important. To become certified to deliver the 10-hour sessions, you would need to schedule the delivery shortly after your Institute training and have a certified trainer sit in as an observer to evaluate and coach you. If you were successful in delivery of the sessions, then you would receive certification.

Institute 2 (squared)

This is level of training was to train the trainers to deliver the Institute programs. To qualify, you needed to be an exceptional trainer of the 10-hour sessions, then attend a second Institute session and assist the trainer. You would then have the opportunity to deliver an Institute with your trainer coaching you before you were certified as an Institute trainer.

Application of TWI

The TWI training programs were originally developed to support training of a rapidly expanding workforce, new operators and new supervisors. This makes the programs perfect for training for a new plant, a new production line, new equipment or new staff. How do you apply the TWI skills to existing operations? The support materials for the trainer had a few examples of dealing with experienced workers, almost as an afterthought.

We can look to Toyota as an example of applying the TWI skills in an existing workforce. Taiichi Ohno used the TWI programs to build the foundations for the Toyota Production System. How he did this is still shrouded in mystery, but a few brave individuals are experimenting. [2] What TWI Director Walter Dietz called "Learning by Doing". They are finding that applying the skills effectively in an existing operation is vastly different than applying it to train new employees.

LinkedIn group - TWI - Training within Industry Forum

Edit - 2016 - removed links to trainingwithinindustry.net, no longer posts the manuals for public downloads

[1] A reprint and annotated version is available from Lulu - http://www.lulu.com/shop/mark-warren/the-twi-report/paperback/product-10900209.html

[2] In 2015 a series of experiments in multiple companies replicated the rapid problem solving curve and core thinking patterns similar to the 1951-55 improvements that Taiichi Ohno had in Toyota. Continued experiments have improved and simplified the process that applies all of the skills/habits in the TWI programs, including the coaching process in multiple countries around the world.

Written by

Mark Warren
Experienced Manufacturing Professional "Discovering Solutions with People"